

REMARKS

Claims 1-19 are pending in this application. Claims 1, 3, 4, and 7 have been amended to define still more clearly what Applicants regard as their invention. Claims 1 and 7 are independent.

The typographical errors of Claims 3 and 4, kindly pointed out by the Examiner at paragraph 2 of the Office Action, have been corrected.

Claims 1-3, 5-9, and 11-19 were rejected under 35 U.S.C. § 103(a) as being obvious from U.S. Patent 5,638,498 (Tyler et al.) in view of the publication entitled "The Importance of Percent-Done Progress Indicators for Computer-Human Interfaces" (Myers et al.); and Claims 4 and 10, as being obvious from Tyler et al. in view of Myers et al., and further in view of U.S. Patent 5,436,637 (Gayraud et al.).

The present invention relates generally to progressive decoding of digital data coded with at least one region of interest. Recent methods for compressing images make it possible to code an image in a progressive way in terms of quality. The decoding of the image can also be progressive, and it is possible to display a part of the image, or a low-quality version thereof, before the entire image has been decoded. Moreover, it is possible to define a region of interest in the image, the region of interest being composed of one or more parts of the image. The region of interest is typically defined by a user and will typically be coded with a higher quality compared to the rest of the image.

Claim 1 is directed to a method for alerting during the progressive decoding of a digital image coded by bitplanes with a region of interest. The method includes detecting an end of decoding of the region of interest by checking at least a number of received bitplanes, and activating an indication of the end of decoding of the region of

interest by displaying an indicator in an indicator-display area at a predetermined position on a screen.

One notable feature of Claim 1 is that an end of decoding of a region of interest is detected by checking at least a number of received bitplanes. See, for example, the present specification at page 9, lines 30-32.^{1/} Moreover, in this regard the specification explains that “it is not necessary to associate information to indicate which is the region of interest” as “in order to recover the region of interest during the decoding of the data, it is sufficient to detect the coefficients for which non-zero bits exist in the bitplanes number higher than or equal to 9” (page 7, lines 18-22 of the application as filed).

Tyler et al., as understood by Applicants, relates to reducing storage requirements for display data. In Fig. 13, cited in the Office Action, compressed data is decompressed based upon the assigned compression algorithms, and the decompressed data is displayed. In step 310 of Fig. 13, the process checks, when the pointer is at the end of the scan line, if any region(s) have been completely decompressed and displayed (“completed”). This can be checked, for example, by determining whether any end-of-region information has been retrieved from the decompression buffer. If one or more regions have been completed, then, in step 312, a number of new region descriptors equal to the amount of completed regions are retrieved from the compressed band buffer and stored in the decompression buffer. By continuing with the process, new region descriptors are eventually added in from each successive band of data on the page (e.g., each band's

^{1/}It is of course to be understood that the references to various portions of the present application are by way of illustration and example only, and that the claims are not limited by the details shown in the portions referred to.

region descriptors can be linked to the next band's region descriptors to effectively provide an entire page's worth of descriptors). (See column 32, lines 3-17, of Tyler et al.)

Thus, Tyler et al. proposes to check whether a region has been completely decompressed “by determining whether any end-of-region information has been retrieved from the decompression buffer” (see column 32, lines 3-8 of that patent). Tyler et al. therefore relies on a specific piece of information to check whether the region has been completely decompressed, and needs the addition of this specific piece of information in the received bitstream.

As mentioned above, the method of Claim 1 can avoid this need for an additional piece of information, as, in Claim 1, the end of the decoding is detected by simply checking the number of bitplanes received, which is particularly adapted to the progressive decoding of a digital image. Nothing in Tyler et al. would teach or suggest such detection.

Myers et al., as understood by Applicants, relates to a so-called “percent done progress indicator,” which is defined in that document as “a graphical technique which allows the user to monitor the progress through the processing of a task.” However, Applicants have found nothing in Myers et al. that would remedy the deficiencies of Tyler et al. Specifically, Applicants submit that the detecting, in Claim 1, of the end of the decoding of a region of interest cannot be taught or suggested by Myers et al., as Myers et al. does not provide any teaching about how the progress of a decoding process should be actually evaluated.

Nothing in Tyler et al. and Myers et al., whether considered separately or in any permissible combination (if any) would teach or suggest detecting an end of decoding

of a region of interest by checking at least a number of received bitplanes, as recited in Claim 1.

Accordingly, Claim 1 is believed to be patentable over Tyler et al. and Myers et al., whether considered separately or in any permissible combination (if any).

Independent Claim 7 is a device claim corresponding to method Claim 1, and is believed to be patentable over Tyler et al. and Myers et al. for at least the same reasons as discussed above in connection with Claim 1.

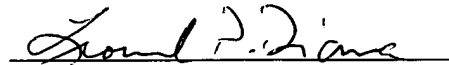
A review of the other art of record has failed to reveal anything which, in Applicants' opinion, would remedy the deficiencies of the art discussed above, as references against the independent claims herein. Those claims are therefore believed patentable over the art of record.

The other claims in this application are each dependent from Claim 1 or 7 discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and early passage to issue of the present application.

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,

A handwritten signature in cursive script, reading "Leonard P. Diana", is written over a horizontal line.

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